The future is modular for pharmaceutical packaging

Overview

Pharmaceutical processors are under ever mounting pressures to streamline processes, increase flexibility and responsiveness and reduce unit costs in the face of new market realities. These include more stringent regulation, increasingly targeted treatments and fragmentation of markets, personalization of medicines and end-user customization, safety and consumer protection and a general trend towards leaner just in time production.

All of these factors dictate increasingly modular manufacturing that allows manufacturers to produce greater variety from shared facilities with faster changeovers, increased flexibility, and minimized total cost of ownership (TCO) for plant.

Exactly the same logic implies that the future is modular for pharmaceutical packaging, with additional considerations of smaller and more diverse batches and the need to embed data into every step of the process to support a more integrated logistics chain extending all the way through to end user.

Modular packaging formats allow producers to operate regionally and closer to markets, to personalize with more targeted batches, managed more flexibly and more responsive to new technical and regulatory requirements.

For Dividella, the future is unambiguously modular to ensure the easiest expansion paths and the most innovative solutions for packaging and materials.

Dividella's packaging and cartoning products embrace modularity in every respect, from NeoTOP machinery engineering to its modular packaging solutions.

As part of the Medipak Systems group, Dividella is integrated into a modular ecosystem of complementary companies, whose respective skills complement one another to provide synergistic centers of innovation.

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A central pillar of the modular manufacturing is the concept of the 'ballroom' facility – a totally adaptable manufacturing area with only supporting fixed equipment, such as HVAC, power supplies, data cabling, etc. Within the ballroom, functional packaging building blocks or modules can be positioned and repositioned in infinitely variable 'plug and play' permutations to meet the widest range of processes and implementations.

The ballroom concept is ultra-flexible, enabling multiproduct manufacturing with wider choices of materials and formats, along with ultra-fast changeovers.

Fixed capital costs can be minimized with reduced overall footprint and lower heating ventilation and energy demands, as well as easier clean space and sterilization provision.

The modular concept can be further extended into self-contained enclosed 'podular' dedicated-use units that can be cloned and replicated at will.

Optimizing continuous processing in tandem with modular concepts offers a series of powerful advantages that include minimization of footprint and fixed overheads, together with opportunities for more flexible packaging with higher degrees of automation and data exploitation.

The main reasons why the future of pharma packaging is modular are the overriding needs to reduce total cost of package (TCP) and maximize capacity utilization. Using each production element to the fullest minimizes TCO, while ability to optimize package format to product and logistics chain minimizes TCP. At the same time, modularity reduces time-to-market and support more sophisticated and accurately targeted production campaigns.

Dividella's modular future concept

Modular design has constantly driven forward the engineering of Dividella's top loading machinery and NeoTOP cartoners, with unwavering determination to achieve continuous improvement in service life, flexibility and future-proofing with TCO always in mind.

Dividella's range of complementary packaging modules provide clients with more cost-effective solutions and a wider range of material options to reduce TCP as well as embracing Industry 4.0 and Pharma 4.0 concepts to leverage from ICT to create new business opportunities.

Similarly, a modular approach to data integration allows Dividella to offer leading edge Pharma 4.0 solutions that embrace smart packaging, smart devices and Internet of Things (IoT) functionalities.

Working in tandem with Medipak Systems stablemates Werum IT Solutions, Seidenader, Mediseal, Rondo and Fargo Automation, Dividella has discovered new ways for the pharma packagers to harness Industry 4.0 concepts for sustainable competitive advantage.

These solutions include:

- Smart packaging raising product security and personalization to new levels with packs that incorporate digital data to interact with production process and end-user to revolutionize delivery for providers and patients

- Smart control devices deliver targeted information that enables production operators or managers to monitor system functions more closely, boosting quality and speeding, setup and changeover
- Condition Monitoring & Predictive Analytics reducing downtime and optimizing resource deployment by interpreting real time data to anticipate critical incidents, minimizing downtime.
- Plug & Produce uses standardized interfaces to unlock IoT functionalities by vertically integrating manufacturing execution system (MES) with control systems to make the individual machine part of a coordinated global network
- EMI improves process stability and productivity by turning raw production data into useful information to support business decision making.

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NeoTOP concept

Dividella's TopLoading/ TopOpening concept recognizes that the best way to pack parenterals is to load medicine packs into the carton from above, which subjects the packs to less stress and also means that they can then be accessed more easily by the consumer from the top of the carton.

The TopLoading concept also recognizes that pack design, construction and appearance form significant added values for manufacturers, meaning that each pack deserves to be treated as a unique entity supported by optimized handling and a complete packaging design.

Therefore Dividella's packaging designers are accustomed to working in close co-operation with the customer's marketing departments to determine detailed specifications for individual packs and carton loading.

Dividella NeoTOPx cartoner